Scott A. Thompson
Executive Director

OKLAHOMA Environmental Quality

Kevin Stitt
Governor

May 24, 2024

The Honorable Jerry Brown, Mayor
City of Kaw City
P.O. Box 30
Kaw City, Oklahoma 74641-0030

Re: General Permit No. OKLAS2400002 – Approved
One-Time Land Application of Biosolids
City of Kaw City Wastewater Treatment Plant
Facility No. S-21201
OPDES Permit No. OK0028878

Dear Honorable Brown:

The Oklahoma Department of Environmental Quality (DEQ), Water Quality Division (WQD) is enclosing the authorization to operate in compliance with General Permit No. OKLAS2400002, for a one-time land application of biosolids from the City of Kaw City (City) wastewater treatment plant's sequential batch reactor (SBR). The biosolids will be pumped from the SBR using a hog pump to a tanker truck. A pasture aerator will be utilized to aerate the land application sites. The biosolids will be applied using a splash plate attached to a tractor. It will be incorporated by a chain drag connected to a tractor. The City's application for this authorization was submitted to DEQ on March 27, 2024. On May 17, 2024, DEQ received supplemental documents to the City's Application.

This authorization is approved in accordance with requirements of Oklahoma Administrative Code (OAC) 252:606, as adopted and promulgated pursuant to the Environmental Code, 27 Oklahoma Statute (O.S.) Supp. 2011.

The authorization is for a one-time application of biosolids to the following sites:

Site 1: 6.6 acres located within the N½, NW¼ of Section 5, Township 26 North, Range 4 East of the Indian Meridian, Kay County, Oklahoma.

Site 2: 26.5 acres located within the NE¼ of Section 6, Township 26 North, Range 4 East of the Indian Meridian, Kay County, Oklahoma.

The biosolids operation authorized by this document should be maintained in accordance with the DEQ General Permit. DEQ must approve any deviation from this authorization in writing before changes can be made. I am returning a copy of the signed Authorization for your records. Please feel free to contact me at 405-702-8236 if you have any questions or concerns.

Sincerely,

Emily Webb, District Representative
Municipal Wastewater Enforcement Section
Water Quality Division
Oklahoma Department of Environmental Quality

Enclosure: As stated

EW/MM/hb CG/CB

cc: Rick Hartz, Wastewater Treatment Plant Operator, City of Kaw City
Robert Quinn, Environmental Specialist, ECLS, Stillwater DEQ Office
Ryan McIntosh, ECLS, Regional Manager, DEQ

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AUTHORIZATION FOR ONE TIME LAND APPLICATION OF SEWAGE SLUDGE
UNDER GENERAL PERMIT NO. GP-OK65S
AUTHORIZATION NO. OKLAS2400002

In compliance with Oklahoma Statute, 27A § 2-14-305 (2011) as amended, and the Rules of the Oklahoma Department of Environmental Quality (DEQ) promulgated thereunder, and in reliance on the certified statement and representation heretofore made in its application:

City of Kaw City
900 Morgan Square East
Kaw City, Oklahoma 74641
Facility No. S-21201

Is hereby authorized for a one-time land application of biosolids from the City of Kaw City Wastewater Treatment Plant's sequential batch reactor to the following sites:

Site 1: 6.6 acres located within the N½, NW¼ of Section 5, Township 26 North, Range 4 East of the Indian Meridian, Kay County, Oklahoma.

Site 2: 26.5 acres located within the NE¼ of Section 6, Township 26 North, Range 4 East of the Indian Meridian, Kay County, Oklahoma.

whose site-specific and land application site conditions conform to and are in accordance with residuals characteristics, monitoring requirements and other conditions set forth in Part I of this Authorization.

Issuance of this Authorization in no way or in any respect affects the permittee's civil or criminal responsibilities regarding beneficial reuse of biosolids, except with respect to the permittee's legal responsibility under the Environmental Code and Rules promulgated by the Board of Environmental Quality to obtain this permit.

This Authorization is non-transferable and is granted summarily by and at the discretion of the Executive Director in accordance with applicable DEQ Rules and provisions of the above-referenced Permit.

This is to certify that the proposed beneficial reuse of biosolids set forth in this Authorization meets the requirements of the DEQ Rules, provided the permittee does not exceed the loading rates and/or metal concentrations set forth in this Authorization.

Issued this 24th day of May 2024.

Myles Mungle, P.E., Engineering Manager
Municipal Wastewater Enforcement Section
Water Quality Division
Oklahoma Department of Environmental Quality

Note: Expiration date is upon completion of existing biosolids removal as from the sequential batch reactor at the City of Kaw City Wastewater Treatment Plant.

PART I: MONITORING, LOADING RATES, METAL CONCENTRATIONS AND OTHER REQUIREMENTS.

SECTION A - MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through the expiration date of this Authorization, the Permittee shall monitor all land application of sewage sludge in accordance with the following schedule.

Pollutants shall be monitored at the frequency schedule(s) shown below:

Amount of Sewage Sludge* (Metric tons/365-day period)	**Frequency**
0 ≥ Sludge ≤ 290	Once/Year
290 ≥ Sludge ≤ 1,500	Once/Quarter
1,500 ≥ Sludge ≤ 15,000	Once/Two Months
15,000 ≥ Sludge	Once/Month

*The amount of bulk sewage sludge applied to the land (dry weight basis).

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 40 C.F.R. § 503.8 (b) (2011).

The required monitoring results shall be retained for the period of the Authorization. The results shall be submitted to the Department as follows:

SAMPLING FREQUENCY	**REPORTING DEADLINE(S)**
Yearly	
January	February 28
Quarterly	
January, February, and March	April 28
April, May, and June	July 28
July, August, and September	October 28
October, November, and December	January 28
Bi-monthly	
January - February	March 28
March - April	May 28
May - June	July 28
July - August	September 28
September - October	November 28
November - December	January 28
Monthly Sampling	**Due the 28th of the following month**

SECTION B - LOADING RATES AND METAL CONCENTRATIONS

In addition to all other requirements and conditions of this General Permit, the Permittee is authorized to land apply sewage sludge only upon the condition that the pollutant ceiling concentration and cumulative pollutant loading rate shall not exceed the listed numerical limits.

Metal concentrations of sewage sludge - Sewage sludge shall not be applied to the land if the concentration of any of the pollutants exceeds the following pollutant concentrations:

TABLE 1	
Pollutant	**Ceiling Concentrations (milligrams per kilogram) ***
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

*Dry Weight Basis

Cumulative Pollutant Loading Rate Limits:

TABLE 2	
Pollutant	**Cumulative Pollutant Loading Rate (kilograms per hectare)**
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	Monitor
Nickel	420
Selenium	100
Zinc	2800

All bulk sewage sludge which is applied to agricultural land, forest, or a reclamation site shall be treated by either Class A or Class B pathogen reduction requirements as defined in Part I Section 1.B.5 of the General Permit. The Permittee may land apply sewage sludge only during the effective date of this Authorization and shall immediately cease and desist any and all land application of sewage sludge made pursuant to such Authorization upon its expiration or at any time the required monitoring indicates that the cumulative loading rate is greater than the allowable rate set forth in this Authorization.

PART II: SPECIAL AND STANDARD CONDITIONS

SECTION A - SPECIAL CONDITIONS

1. There shall be no runoff or discharge from the land application site.

2. The commingling of sewage sludge with any other type of sludge or wastewater intended for land application is not allowed under this Authorization. Sludge which results from the commingling of sewage and any other additive shall not be land applied under this Authorization.

3. Special conditions and/or modification for specific land application sites will be included in the Authorization as necessary to protect the waters of the State.

4. When storage of sewage sludge is necessary, prior to land application, the sludge must be stored in a manner to prevent pollution to the waters of the State.

5. The Permittee is hereby given notice that this Authorization is in all respects subject to compliance with any and all applicable and relevant terms, conditions, provisions and requirements and any and all amendments of the laws of the State of Oklahoma and the Board of Environmental Quality's Rules. The absence of any express reference within this Authorization to any particular statutory requirement, rule(s) or standard(s) shall in no respect be deemed or construed to exempt or preclude the application of such requirement, rule(s) and standard(s) to this Authorization or the Permittee. By approval, grant and issuance of this Authorization, Permittee acknowledges receipt of true, correct, and current copies of the Board of Environmental Quality's rules (as amended) provided, however, that Permittee further acknowledges that any and all amendments thereto shall become part of this Authorization.

SECTION B - STANDARD CONDITIONS

1. Duty to reapply: If the Permittee wishes to continue an activity regulated by this Authorization after the expiration date of said Authorization, the Permittee must reapply for and obtain a new Authorization. Application for renewal shall be submitted at least ninety (90) days before the expiration date of the original Authorization. The Department may grant permission to submit a renewal application out of time but not later than the original Authorization expiration date.

2. Duty to provide information: The Permittee shall furnish to the Department, within reasonable time, any information which the Department may request to determine whether cause exists for modifying or revoking the Authorization, or to determine compliance with the Authorization.

3. Facilities operation: All facilities and equipment used by the Permittee shall be operated as efficiently as possible and be maintained in good working order so as to achieve compliance with the terms and conditions of this Authorization.

4. Right to entry: The Permittee shall allow any representative of the Department, upon presentation of credentials to a responsible person to:

    a. Enter upon the Permittee's premises where sewage sludge is being land applied or where any records are required to be kept under the terms and conditions of the permit.

b. At reasonable times have access to and copy any records required to be kept under the terms and conditions of this Authorization; to inspect any equipment utilized in the land application of the sewage sludge; to take photographs; and to sample the sewage sludge being land applied or the soil at the land application site.

c. Enter upon the Permittee's premises to examine and inspect any facilities and equipment covered under the terms of the permit.

5. Monitoring and reporting: All monitoring and reporting shall be in accordance with Part I, Section A of the Authorization.

6. Noncompliance notification: If, for any reason, the Permittee does not comply with or is unable to comply with any term(s) or condition(s) of the permit, the Permittee shall within five (5) days of becoming aware of such condition, provide the Department with the following information in writing:

Description of the noncompliance and the cause; and

the period of noncompliance, including exact dates and times; or, if not corrected the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncompliance.

7. Sludge application limitations: Sewage sludge shall not be applied to any site which is flooded, frozen, snow covered or within 10 meters of any water of the United States.

From: Gary Kinder <gkinder909@msn.com>
Sent: Wednesday, March 27, 2024 3:04 PM
To: Myles Mungle <Myles.Mungle@deq.ok.gov>
Cc: Greg Turpin <greg@sandylandok.com>
Subject: [EXTERNAL] Kaw City Sludge Management Plan

Myles,

Attached is the City of Kaw City cover letter for the attached Sludge Management Plan. If you have any questions, email, or call me 580-399-0141.

Thank you,

Gary

KAW CITY
On Beautiful Kaw Lake

3/26/2024

Myles Mungle,

The City of Kaw has decided to dispose of the solids in our FEB at the Wastewater Treatment Plant in a beneficial way by using it as fertilizer applied to local landowners' property. This is not only a cost-effective alternative to a landfill (not hauling it ~100 miles away) but will also benefit local producers (purchasing less fertilizer) as well as keeping from unnecessarily adding to a landfill.

If you have any questions, don't hesitate to reach out. Thanks!

Jerry Brown

Mayor of Kaw City

P.O. Box 30 Kaw City, OK 74641 Phone (580)269-2525 Fax (580)269-2957

Kaw City Wastewater Treatment Plant Lagoon

Operations

SandyLand Environmental has been contracted to remove the sludge from the Kaw City Wastewater Treatment Plant Lagoon. The sludge will be pumped with a hog pump onto tanker trucks and/or Terragator applicators. The tankers trucks and/or Terragators will haul the residuals to the field. Land application will be by the broadcast (splash Plate) method to ensure uniform distribution.

All land applied residuals will be soil incorporated by the end of the day. The procedure for the application of residuals will be as follows:

1. Aeration of site immediately prior to application. The pasture aerator is a cylinder with flat spikes projecting from the cylinder. The cylinder is weighted so that the soil is penetrated by the spikes. The aerator is pulled, by a tractor, across the field leaving openings in the soil followed by the residual application.
2. Spreading of residuals per method described above. The residuals hit a splash plate and spread uniformly across the field.
3. Incorporation of residuals by end of the workday. The residuals are incorporated by using a chain drag. The chain drag is pulled across the field with a tractor.

Contractor Information

SandyLand Environmental
4930 NS 3775
Allen, OK 74825

Land Application Site No. 1

Name and address of landowner:
Anthony Bahm
10105 E. HWY 11
Kaw City, OK 74641

Field #1 – 6.6 acres in N/2, NW/4, Section 5, Township 26 North, Range 4 East, Kay County.

Land Application Site No. 2

Name and address of landowner:
Raymond M. Lewis and Vivian Jo Lewis
820 Edgewood Dr.
Ponca City, OK 74604

Field #2 – 26.5 acres in NE/4, Section 6, Township 26 North, Range 4 East, and S/2, NW/4, Section 5, Township 26 North, Range 4 East, Kay County

Attachment 1 contains an aerial map with buffer zones, soil maps, topographic map and the Landowner Agreement.

Sludge and soil analytical results are in Attachment 2.

Site Restrictions

The following site restrictions are understood and will be followed.

The residuals will not be land applied within two hundred fifty feet from residences or any well used for public or private water supply. The residuals will not be applied within two feet of the highest seasonal water table nor applied to the land within one hundred feet of a stream or body of water. The residuals will not be applied within twenty-five feet from traveled portions of public roadway.

Land application will not occur during periods of precipitation or while the soil is saturated, and absorption is hindered. In addition, the residuals will not be applied to a site that is frozen or snow covered.

This site used for land application will not be used for growing food crops or growing turf. Therefore, the site restrictions for food crops and turf do not apply.

Feed crops shall not be harvested until 30 days after application of the residuals.

Animals shall not be grazed on land until 30 days after application of residuals to the land.

Access to this farmland will be restricted for 30 days after residuals application because of the low potential for public exposure. This field is remote and is fenced.

Spill Control

In the unlikely event of a spill, the following actions will be taken immediately:

- Halt Source of spill - rupture line or valve or damaged truck unit.
- Contain Spill – Use straw bales or similar containment material to form a barrier.
- Clean Up – Employ a loader if necessary, to remove as much spilled material as possible. Complete clean up with hand tools if necessary and dispose of in an approved manner.
- Reporting – As soon as possible after the spill, notify the plant for reporting to ODEQ.

Estimated Application Rates

Combining information from: 1) the residuals analysis reports, 2) the soil analyses report and 3) the yield goal for the crop grown, residuals application rates are determined.

Annual residuals application rates will not exceed nitrogen and phosphorous rates denoted in OSU Extension Fact Sheet PSS-2225 for the crop grown and will not be applied in rates that result in phytotoxicity.

The levels of plant available nitrogen (PAN) values are calculated by use of OSU Current Report (CR) 2201.

- PAN = Org-N (TKN-NH4) x V1 + NO3_N + NH4_N x V2 x 0.002

  Organic Nitrogen Mineralization (V1) is 0.40 for unstabilized primary and waste.

  Ammonia Nitrogen Non-volatilized Fraction (V2) is 1.0 for surface application with incorporation.

  Using the current analysis:

  PAN = (15,200 mg/kg – 550 mg/kg) x 0.40 + 0.00 mg/kg +550 mg/kg x 1.0 x 0.002 PAN = 12.82 lbs./dry ton

  There is an estimated 800,000 gallons of residuals at 8.06% solids to

  cover 33.1 acres. Dry Tons/Acre =800,000 gallons x 0.0806/ 33.1 acres x

  8.34 / 2000

  = 8.12 dry tons/acre

  Available N, lb/acre = lbs/dry ton x dry tons/acre
  = 12.82 lbs./dry ton x 8.12 dry tons/acre
  = 104.10 lbs./acre of nitrogen

  An estimated yield of 5 tons/acre of bermuda grass would allow 260 lbs./acre of nitrogen according to "OSU Soil Test Interpretations PS-2225".

  The low concentration of nitrogen, potassium and phosphorus in the residuals would allow for a heavier application rate. The plan for this project is to apply about 24,170 gallons/acre on 33.1 acres.

  PAN = 12.82 lbs./dry ton
  PAP = 27.72 lbs./dry ton
  PAK = 5.08 lbs./dry ton

  The sludge analytical results are found in Attachment 2.

  Application

  The Municipal Sludge Land Application Permit and Landowner's Agreements are in Attachment 3.

Attachment 1

Land Application Site Maps and Landowner Agreements

LANDOWNER AGREEMENT FOR THE LAND APPLICATION OF WASTEWATER TREATMNET PLANT BIOSOLIDS

Date: 12-29-23

Owner Name:

Address:

County: Kay

Phone: ( ) _____

Farm Location / Legal Description: Pt N/2 NWY 5-26-4E

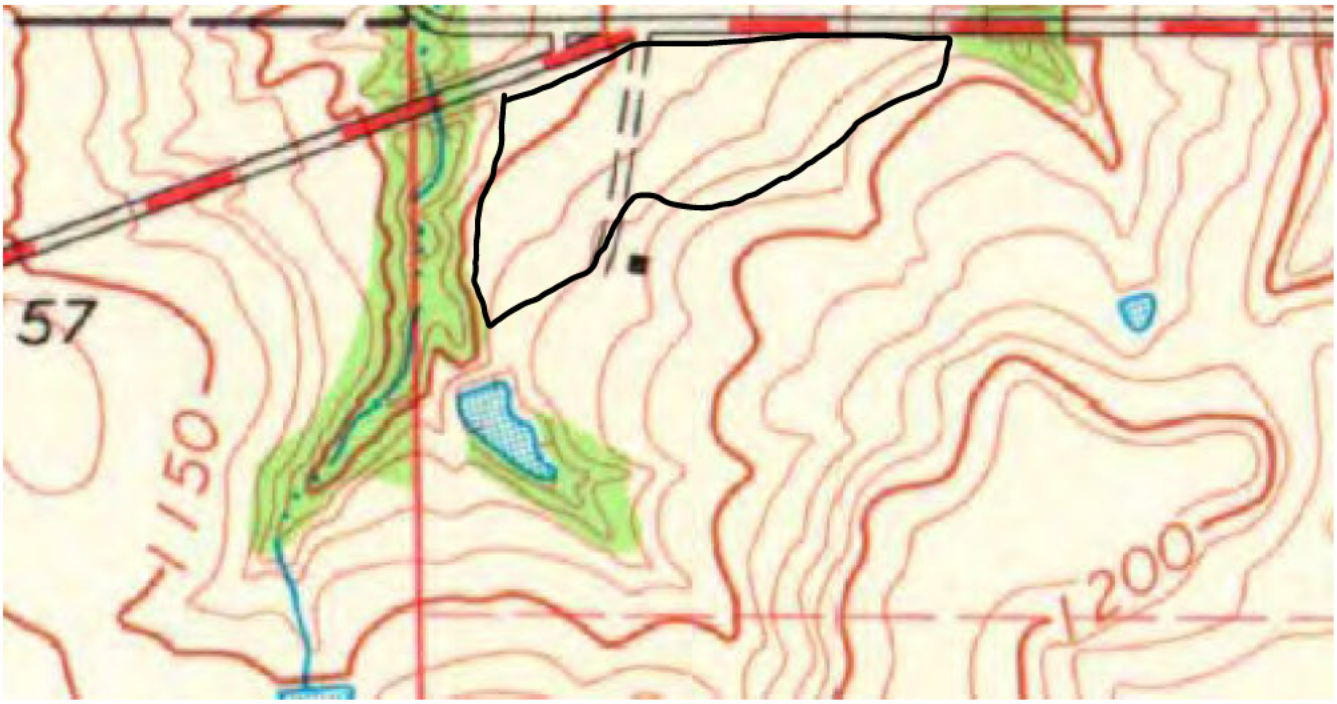
Acres: 27

_____
LANDOWNER

_____ DATE 12-29-23

_____ DATE _____


Field No. 1
Write a description for your map.
Legend
Untitled Path
S Bear Creek Rd
Redbud Rd
E Coleman Rd
11
Hidden Cove Rd
Google Earth
N
1000 ft



Field No. 1 – N/2, NW/4, Section 6, Township 26 North, Range 4 E, Kay County

Soil Map—Kay County, Oklahoma
(Land Application Area No. 1)

Map Scale: 1:1,620 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kay County, Oklahoma
Survey Area Data: Version 20, Sep 7, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

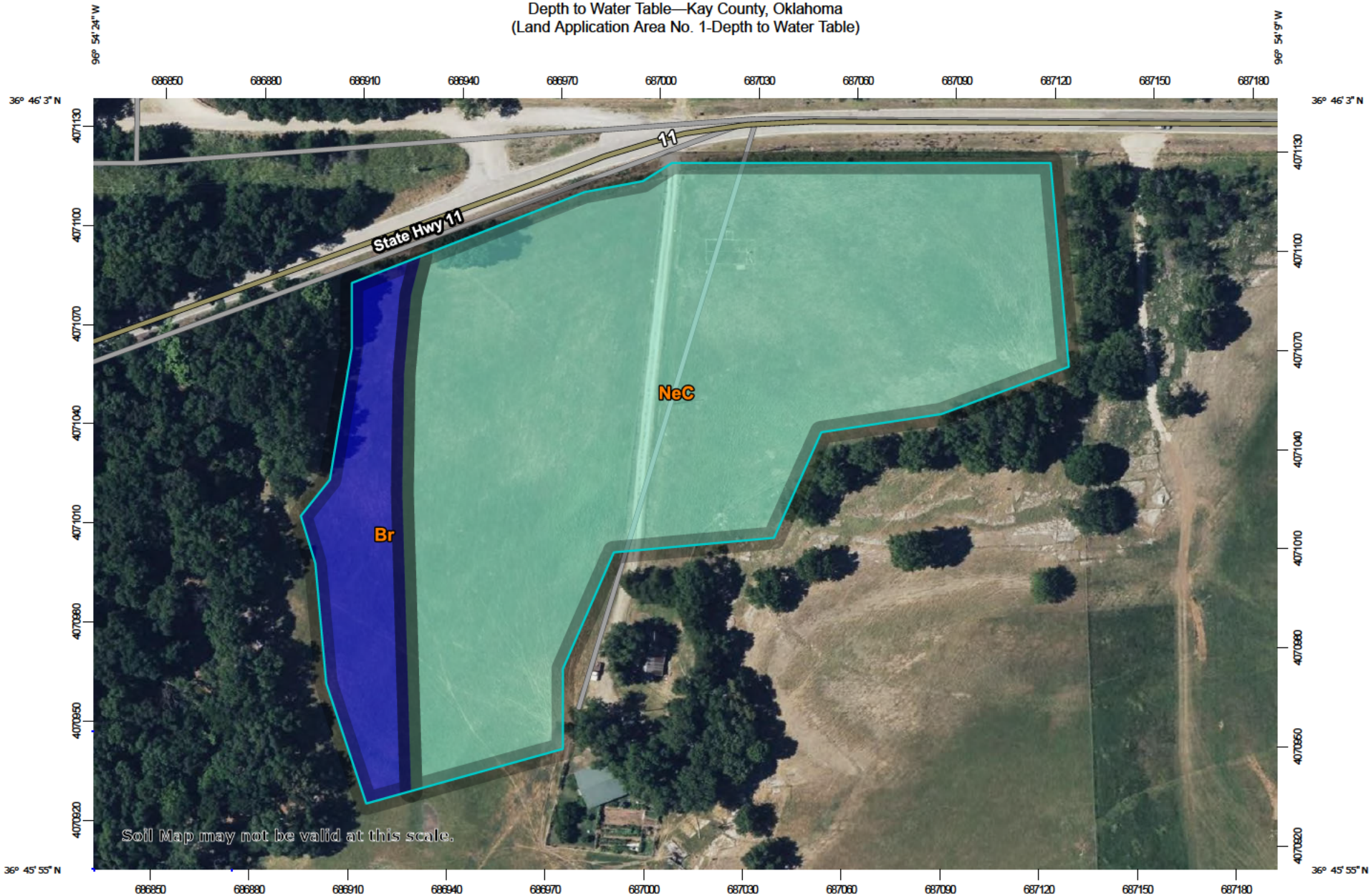
Date(s) aerial images were photographed: May 11, 2022—Jul 11, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Br	Ashport, Port and Pulaski soils, 0 to 1 percent slopes, frequently flooded	1.0	15.0%
NeC	Agra-Foraker complex, 3 to 5 percent slopes	5.5	85.0%
Totals for Area of Interest		**6.5**	**100.0%**

Depth to Water Table—Kay County, Oklahoma
(Land Application Area No. 1-Depth to Water Table)



Map Scale: 1:1,640 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Kay County, Oklahoma
Survey Area Data: Version 20, Sep 7, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 11, 2022—Jul 11, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
Br	Ashport, Port and Pulaski soils, 0 to 1 percent slopes, frequently flooded	>200	0.9	13.7%
NeC	Agra-Foraker complex, 3 to 5 percent slopes	107	5.5	86.3%
Totals for Area of Interest			**6.3**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

LANDOWNER AGREEMENT FOR THE LAND APPLICATION OF WASTEWATER TREATMNET PLANT BIOSOLIDS

Date: 12-30-23

Owner Name:

Address:

County: Kay

Phone:

Farm Location / Legal Description: 10495 East Hwy 11 Kaw City OK

6200-06-026-04E-1-003-00
Longwood Township

6200-05-026-04E-2-006-00
Longwood Township
80 acres

Acres: 66.04

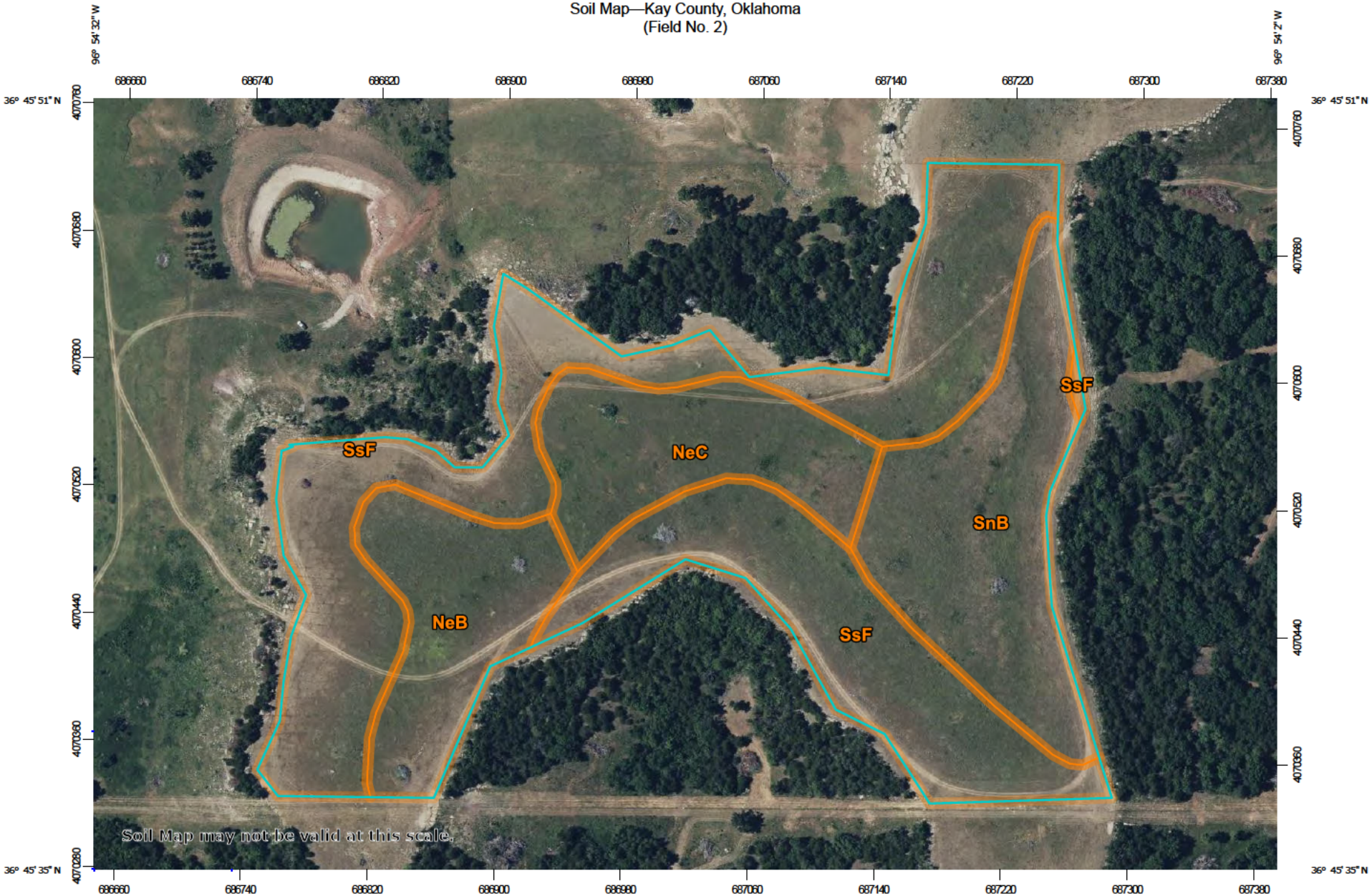
6200-05-026-04E-2-001-1
25.34 acres

_____ DATE 12-30-23
LANDOWNER

DATE 12/30/23


Field No. 2
Write a description for your map.
Legend
Untitled Path
Redbud Rd
S Bear Creek Rd
E Coleman Rd
11
Park Pl
Shady Pl
Seelinfork Rd
N
1000 ft
Google Earth

Soil Map—Kay County, Oklahoma
(Field No. 2)



Map Scale: 1:3,410 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

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- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
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- Streams and Canals

Transportation
- Rails
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- US Routes
- Major Roads
- Local Roads

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- Aerial Photography

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Survey Area Data: Version 20, Sep 7, 2023

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Date(s) aerial images were photographed: May 11, 2022—Jul 11, 2022

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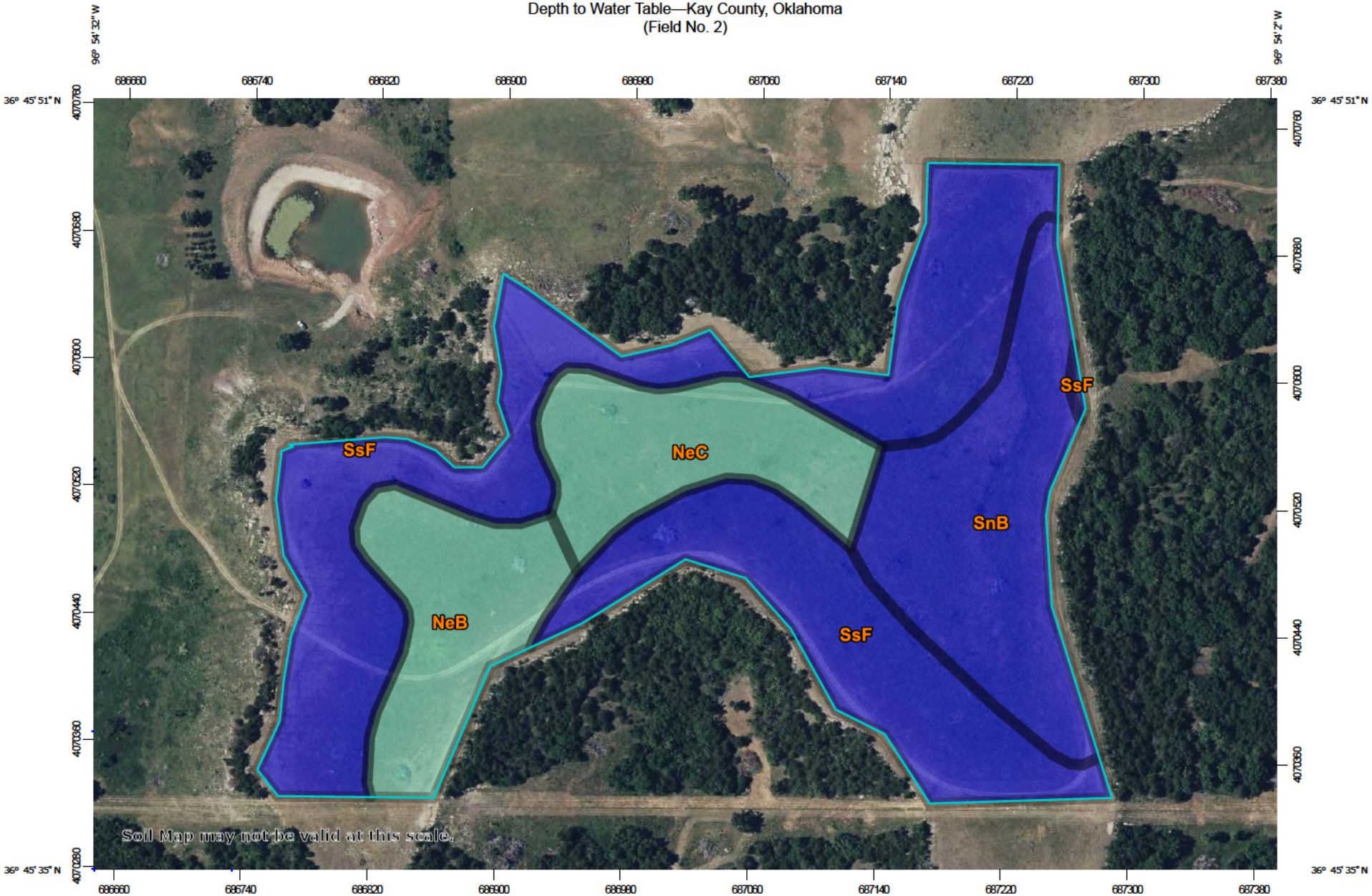
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NeB	Agra-Foraker complex, 1 to 3 percent slopes	3.7	13.1%
NeC	Agra-Foraker complex, 3 to 5 percent slopes	3.9	13.8%
SnB	Shidler silty clay loam, 1 to 3 percent slopes	6.0	21.1%
SsF	Shilder-Westsum complex, 5 to 20 percent slopes	14.8	51.9%
Totals for Area of Interest		**28.5**	**100.0%**

Depth to Water Table—Kay County, Oklahoma
(Field No. 2)



Map Scale: 1:3,410 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kay County, Oklahoma
Survey Area Data: Version 20, Sep 7, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 11, 2022—Jul 11, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
NeB	Agra-Foraker complex, 1 to 3 percent slopes	107	3.7	13.1%
NeC	Agra-Foraker complex, 3 to 5 percent slopes	107	3.9	13.8%
SnB	Shidler silty clay loam, 1 to 3 percent slopes	>200	6.0	21.1%
SsF	Shilder-Westsum complex, 5 to 20 percent slopes	>200	14.8	51.9%
Totals for Area of Interest			**28.5**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Attachment 2

Sludge and Soil Analytical Results

ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

EPA laboratory code: OK00921

Oklahoma DEQ Certification No. 8304

Certificate of Analysis

Client Name: **Sandyland Environmental** Date Received: 10/18/23

Project: **Kaw City** Report Date: 11/08/23

ERT Lab Log #	Sample Identification	Date Sampled	Analysis Date	Time	Analyzed By	Parameter	Results	Units	RL	Method
WW2310365	**Sludge**	**10/17/23**	10/25/23	20:06	AKB	**TCLP Mercury**	**BDL**	mg/L	0.0100	EPA 7470A
			10/27/23	12:49	JTM	**TCLP Arsenic**	**BDL**	mg/L	0.100	EPA 6010B
			10/27/23	12:49	JTM	**TCLP Barium**	**0.192**	mg/L	0.100	EPA 6010B
			10/27/23	12:49	JTM	**TCLP Cadmium**	**BDL**	mg/L	0.100	EPA 6010B
			10/27/23	12:49	JTM	**TCLP Chromium**	**BDL**	mg/L	0.100	EPA 6010B
			10/27/23	12:49	JTM	**TCLP Lead**	**BDL**	mg/L	0.100	EPA 6010B
			10/27/23	12:49	JTM	**TCLP Selenium**	**BDL**	mg/L	0.100	EPA 6010B
			10/27/23	12:49	JTM	**TCLP Silver**	**BDL**	mg/L	0.100	EPA 6010B
			10/25/23	15:41	JAH	**TCLP Benzene**	**BDL**	mg/L	0.0500	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP Carbon tetrachloride**	**BDL**	mg/L	0.0500	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP Chlorobenzene**	**BDL**	mg/L	0.0500	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP Chloroform**	**BDL**	mg/L	0.250	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP 1,2-Dichloroethane**	**BDL**	mg/L	0.0500	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP 1,1-Dichloroethene**	**BDL**	mg/L	0.0500	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP 2-Butanone (MEK)**	**BDL**	mg/L	0.500	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP Tetrachloroethene**	**BDL**	mg/L	0.0500	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP Trichloroethene**	**BDL**	mg/L	0.0500	EPA 8260B
			10/25/23	0.653472	JAH	**TCLP Vinyl chloride**	**BDL**	mg/L	0.0500	EPA 8260B
			10/31/23	23:56	DSH	**TCLP 1,4-Dichlorobenzene**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP 2,4-Dinitrotoluene**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP Hexachlorobenzene**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP Hexachloro-1,3-butadiene**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP Hexachloroethane**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP Nitrobenzene**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP Pyridine**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP 3&4-Methyl Phenol**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP 2-Methylphenol**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP Pentachlorophenol**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP 2,4,5-Trichlorophenol**	**BDL**	mg/L	0.100	EPA 8270C
			10/31/23	23:56	DSH	**TCLP 2,4,6-Trichlorophenol**	**BDL**	mg/L	0.100	EPA 8270C

Laboratory Authorized Signature

AKB, JTM, JAH, DSH = Subcontracted to ODEQ State Lab 9915

201 Arlington St. Ada OK 74820
(580) 332-8808 Phone (580) 421-9110 Fax

ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

EPA laboratory code: OK00921

Oklahoma DEQ State ID No. 8304

Certificate of Analysis

Client Name: **Sandyland Environmental**

Date Received: 10/18/23

Project: **Kaw City**

Report Date: 11/08/23

ERT Lab Log #	Sample Identification	Date Sampled	Analysis Date	Time	Analyzed By	Parameter	Results	Units	RL	Method
WW2310365	**Sludge**	**10/17/23**	10/27/23	18:05	NWH	**TCLP Chlordane**	**BDL**	mg/L	0.00500	EPA 8081B
			10/27/23	18:05	NWH	**TCLP Endrin**	**BDL**	mg/L	0.00500	EPA 8081B
			10/27/23	18:05	NWH	**TCLP Heptachlor**	**BDL**	mg/L	0.00500	EPA 8081B
			10/27/23	18:05	NWH	**TCLP Heptachlor Epoxide**	**BDL**	mg/L	0.00500	EPA 8081B
			10/27/23	18:05	NWH	**TCLP Lindane**	**BDL**	mg/L	0.00500	EPA 8081B
			10/27/23	18:05	NWH	**TCLP Methoxychlor**	**BDL**	mg/L	0.00500	EPA 8081B
			10/27/23	18:05	NWH	**TCLP Toxaphene**	**BDL**	mg/L	0.0100	EPA 8081B
			10/27/23	10:43	MFM	**TCLP 2,4-D**	**BDL**	mg/L	0.00200	EPA 8151A
			10/27/23	10:43	MFM	**TCLP 2,4,5-TP(Silvex)**	**BDL**	mg/L	0.00200	EPA 8151A
			10/20/23	09:30	JD	**Solids**	**8.06**	%		SM_2540G
			10/20/23	03:05	SN	**Phosphorus (P)**	**6,052**	mg/kg*	76.5	EPA 6010B
			10/20/23	03:05	SN	**Phosphorus (P)**	**0.605**	wt %	---	EPA 6010B (Calc)
			10/20/23	03:04	SN	**Potassium**	**2,117**	mg/kg*	76.5	EPA 6010B
			10/20/23	03:04	SN	**Potassium**	**0.212**	wt %	---	EPA 6010B
			10/24/23	12:20	AT	**Ammonia (N)**	**550**	mg/kg*	19.0	EPA 350.1
			10/27/23	18:18	KBC	**Ammonia (N)**	**0.0550**	wt %	---	EPA 350.1 (Calc)
			10/26/23	10:45	AJ	**NO3-NO2(N)**	**BDL**	mg/kg*	11.4	EPA 353.2
			10/25/23	15:23	UNP	**TKN**	**15,200**	mg/kg*	124	4500NOrg C-2011
			11/08/23	18:40	KBC	**TKN**	**1.52**	wt %	---	4500NOrg C-2011 (Calc)
			10/24/23	15:20	SN	**pH**	**7.16**	S.U.	0.1	SM 4500-HB

Laboratory Authorized Signature

RL = Reporting Limit

*mg/kg reported on a dry weight basis

BDL = Analyte Detected Below RL
NWH, MFM, UNP = Subcontracted to ODEQ State ID 9915

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(580) 332-8808 Phone (580) 421-9110 Fax

ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

EPA laboratory code: OK00921

Oklahoma DEQ State ID No. 8304

Certificate of Analysis

Client Name: **Sandyland Environmental** Date Received: 10/18/23

Project: **Kaw City** Report Date: 11/08/23

ERT Lab Log #	Sample Identification	Date Sampled	Analysis Date	Time	Analyzed By	Parameter	Results	Units	RL	Method
WW2310365	**Sludge**	**10/17/23**	10/26/23	11:48	NDL	**Mercury**	**1.93**	mg/kg*	0.552	EPA 7471A
			10/20/23	03:58	SN	**Arsenic**	**8.60**	mg/kg*	3.06	EPA 6010B
			10/20/23	07:39	SN	**Cadmium**	**1.98**	mg/kg*	0.306	EPA 6010B
			10/20/23	10:55	SN	**Chromium**	**23.6**	mg/kg*	0.306	EPA 6010B
			10/20/23	06:30	SN	**Copper**	**1,023**	mg/kg*	3.06	EPA 6010B
			10/20/23	06:31	SN	**Lead**	**49.6**	mg/kg*	6.12	EPA 6010B
			10/20/23	05:11	SN	**Molybdenum**	**4.30**	mg/kg*	1.53	EPA 6010B
			10/20/23	06:31	SN	**Nickel**	**22.2**	mg/kg*	1.53	EPA 6010B
			10/20/23	07:39	SN	**Selenium**	**BDL**	mg/kg*	6.12	EPA 6010B
			10/20/23	06:30	SN	**Zinc**	**758**	mg/kg*	6.12	EPA 6010B
			10/28/23	16:15	NWH	**PCB 1016**	**BDL**	mg/kg*	0.470	EPA 8082
			10/28/23	16:15	NWH	**PCB 1221**	**BDL**	mg/kg*	0.470	EPA 8082
			10/28/23	16:15	NWH	**PCB 1232**	**BDL**	mg/kg*	0.470	EPA 8082
			10/28/23	16:15	NWH	**PCB 1242**	**BDL**	mg/kg*	0.470	EPA 8082
			10/28/23	16:15	NWH	**PCB 1248**	**BDL**	mg/kg*	0.235	EPA 8082
			10/28/23	16:15	NWH	**PCB 1254**	**BDL**	mg/kg*	0.235	EPA 8082
			10/28/23	16:15	NWH	**PCB 1260**	**BDL**	mg/kg*	0.235	EPA 8082

Laboratory Authorized Signature

RL = Reporting Limit

BDL = Analyte Detected Below RL

NDL, NWH = Subcontracted to ODEQ State ID 9915

*mg/kg reported on a dry weight basis

201 Arlington St. Ada OK 74820

(580) 332-8808 Phone (580) 421-9110 Fax

ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

EPA laboratory code: OK00921

Oklahoma DEQ Certification No. 8304

Quality Control Report

Client Name: **Sandyland Environmental** Date Received: 10/18/23

Project: **Kaw City** Report Date: 11/08/23

Date Sampled	Parameter	Method	RL (ppm)	RPD %	BLANK	Spike % Recovery	Standard % Recovery
10/17/23	Mercury	EPA 7470A	0.0100	1.87	BDL	104	105
	Arsenic	EPA 6010B	0.0100	1.52	BDL	109	103
	Barium	EPA 6010B	0.0100	1.220	BDL	100	102
	Cadmium	EPA 6010B	0.0100	1.550	BDL	106	100
	Chromium	EPA 6010B	0.0100	2.02	BDL	99.2	98.8
	Lead	EPA 6010B	0.0100	2.02	BDL	104	100
	Selenium	EPA 6010B	0.0100	1.66	BDL	110	102
	Silver	EPA 6010B	0.0100	1.90	BDL	102	93.8
	Benzene	EPA 8260B	0.0500	2.57	BDL	104	89.6
	Carbon tetrachloride	EPA 8260B	0.0500	1.68	BDL	118	101
	Chlorobenzene	EPA 8260B	0.0500	2.92	BDL	122	109
	Chloroform	EPA 8260B	0.250	4.79	BDL	106	93.6
	1,2-Dichloroethane	EPA 8260B	0.0500	5.65	BDL	96.4	87.6
	1,1-Dichloroethene	EPA 8260B	0.0500	3.86	BDL	106	89.2
	2-Butanone (MEK)	EPA 8260B	0.500	2.79	BDL	84.8	84.0
	Tetrachloroethene	EPA 8260B	0.0500	1.42	BDL	140	118
	Trichloroethene	EPA 8260B	0.0500	3.33	BDL	110	108
	Vinyl chloride	EPA 8260B	0.0500	1.73	BDL	164	133
	1,4-Dichlorobenzene	EPA 8270C	0.100	9.42	BDL	60.0	56.2
	2,4,5-Trichlorophenol	EPA 8270C	0.100	5.26	BDL	77.8	76.0
	2,4,6-Trichlorophenol	EPA 8270C	0.100	1.20	BDL	67.0	67.4
	2,4-Dinitrotoluene	EPA 8270C	0.100	6.08	BDL	78.0	80.8
	2-Methylphenol	EPA 8270C	0.100	8.06	BDL	59.4	65.0
	3&4-Methyl Phenol	EPA 8270C	0.100	2.13	BDL	75.8	85.4
	Hexachloro-1,3-butadiene	EPA 8270C	0.100	0.000	BDL	0.0	22.0
	Hexachlorobenzene	EPA 8270C	0.100	5.87	BDL	45.6	48.0
	Hexachloroethane	EPA 8270C	0.100	2.46	BDL	40.2	41.2
	Nitrobenzene	EPA 8270C	0.100	4.58	BDL	67.0	69.2
	Pentachlorophenol	EPA 8270C	0.100	6.13	BDL	74.0	78.2
	Pyridine	EPA 8270C	0.100	6.02	BDL	68.4	72.8
	Endrin	EPA 8081B	0.0200	0.374	BDL	80.3	83.3
	Heptachlor	EPA 8081B	0.0200	0.132	BDL	75.6	79.2
	Heptachlor Epoxide	EPA 8081B	0.0200	0.261	BDL	76.8	81.0
	Gamma BHC	EPA 8081B	0.0200	0.824	BDL	73.1	76.2
	Methoxychlor	EPA 8081B	0.0200	1.10	BDL	82.4	87.5
	2,4,5-TP(Silvex)	EPA 8151A	0.00200	8.87	BDL	84.8	89.6
	2,4-D	EPA 8151A	0.00200	9.76	BDL	83.8	87.0

Laboratory Authorized Signature

RL = Reporting Limit

BDL = Analyte was analyzed for but not detected above RL

*Performance of this Analyte is outside of established criteria.

201 Arlington St. Ada OK 74820
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ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

EPA laboratory code: OK00921

Oklahoma DEQ State ID No. 8304

Quality Control Report

Client Name: **Sandyland Environmental**

Date Received: 10/18/23

Project: **Kaw City**

Report Date: 11/08/23

Date Sampled	Parameter	Method	RL (ppm)	RPD %	BLANK	Spike % Recovery	Standard % Recovery
10/17/23	% Solids	SM_2540G	-----	8.68	0.00	NA	NA
	Phosphorus (P)	EPA 6010B	0.250	2.32	BDL	96.1	90.7
	Potassium	EPA 6010B	0.250	0.874	BDL	97.0	95.7
	Ammonia (N)	EPA 350.1	0.100	1.40	BDL	101	100
	NO3-NO2 (N)	EPA 353.2	0.100	0.999	BDL	105	99.7
	TKN	4500NOrg C-2011	20.0	7.85	BDL	198*	99.0
	pH	SM 4500-HB	0.1 SU	0.279	NA	NA	101
	Mercury	EPA 7471A	0.0400	3.77	BDL	90.8	106
	Arsenic	EPA 6010B	0.010	0.784	BDL	93.4	92.5
	Cadmium	EPA 6010B	0.001	0.969	BDL	92.3	101
	Chromium	EPA 6010B	0.001	0.681	BDL	94.3	96.5
	Copper	EPA 6010B	0.010	0.360	BDL	90.8	89.4
	Lead	EPA 6010B	0.010	1.65	BDL	89.7	91.8
	Molybdenum	EPA 6010B	0.005	0.00129	0.002682	95.4	97.3
	Nickel	EPA 6010B	0.005	0.164	BDL	88.5	92.8
	Selenium	EPA 6010B	0.020	0.0459	BDL	82.7	92.3
	Zinc	EPA 6010B	0.020	0.508	BDL	88.3	90.1
	PCB 1016	EPA 8082	0.0340	47.7*	BDL	201*	63.5
	PCB 1221	EPA 8082	0.0340	NA	BDL	NA	NA
	PCB 1232	EPA 8082	0.0340	NA	BDL	NA	NA
	PCB 1242	EPA 8082	0.0340	NA	BDL	NA	NA
	PCB 1248	EPA 8082	0.0170	NA	BDL	NA	NA
	PCB 1254	EPA 8082	0.0170	NA	BDL	NA	NA
	PCB 1260	EPA 8082	0.0170	33.9*	BDL	97.0	68.9
	Decachlorobiphenyl (Surr)	*EPA 8082*	*% Rec*	*NA*	*91.9*	*89.5*	*79.4*
	Tetrachloro-m-xylene (Surr)	*EPA 8082*	*% Rec*	*NA*	*81.1*	*72.1*	*70.0*

Laboratory Authorized Signature

RL = Reporting Limit

BDL = Analyte Detected Below RL

* Outside of Control Limits

201 Arlington St. Ada OK 74820
(580) 332-8808 Phone (580) 421-9110 Fax

ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

131 Arlington St.
Ada, OK 74820
(580) 332-8808 Phone (580) 421-9110 Fax
EPA Laboratory Code: OK00921
ODEQ State ID No. 8304

Client: **Sandyland Env**

Dates Received: 10/13/23

Project: Kaw City

Report Date:

ERT Lab Log# WW2310366

- CERTIFICATE OF ANALYSIS -

Sample Date	Sample ID	Fecal Coliforms cfu/gram	% solids
10/18/2023	**#1**	**<100**	**8.60**
10/18/2023	**#2**	**11,673**	**5.14**
10/18/2023	**#3**	**1,374**	**7.28**
10/18/2023	**#4**	**<100**	**8.02**
10/18/2023	**#5**	**<100**	**9.10**
10/18/2023	**#6**	**<100**	**7.86**
10/18/2023	**#7**	**<100**	**7.10**

Geometric Mean **<287**

Standard Methods *9222-D* *2540-G*

Analyst Notes:

Analysis Date	Analysis Time	Analyzed By	Parameter
10/18/23	15:05	JD	Fecal Coliform
10/20/23	09:30	JD	% Solids

Laboratory Authorized Signature

Environmental Resource Technologies

201 Arlington St. Ada, Oklahoma 74820-0722
Phone (580) 332-8808 Fax (580) 421-9110

CHAIN OF CUSTODY

Client Name: Sandyland Env

PROJECT NAME: Kaw City

Lab Log #	Date Sample Taken	Time Sample Taken	Matrix Water (W) Soil (S) Sludge (Sl) Other	G R A B	C O M P	Client I.D. Sample Location	Temp C, F	No. of Container (p)=plastic (g)=glass	Size of Container 1L, 500mL, 250mL, etc.	Analysis Requested	Sample Presv.
ww23103 65	10-17-23	4:00 P	Sludge (Sl)		X	Sludge lagoon		3(g)	1L	Full TCLP (Volatiles, Semi-Volatiles, Pesticides/Herbicides, Metals)	Ice
	10-17-23	4:00 P	Sludge (Sl)		X	Sludge		1(g)	1L	PCBs	
	10-17-23	4:00 P	Sludge (Sl)		X	Sludge		1(p)	500mL	503 Metals (As,Cd,Cr,Cu,Pb,Mo,Ni,Se,Zn,Hg)	
	10-17-23	4:00 P	Sludge (Sl)		X	Sludge		1(p)	500mL	Nutrients (K,P,NH3,TKN,NO3-NO2), % Solids, pH	
ww23103 66A	10-18-23	7:15 A	Sludge (Sl)	X		1 Sludge		1(p)	100mL	Fecal	
B	10-18-23	7:20 A	SL	X		2		1p	100mL	Fecal	
C	10-18-23	7:25 A	SL	X		3		1p		Fecal	
D	10-18-23	7:30 A	SL	X		4		1p		Fecal	
E	10-18-23	7:35 A	SL	X		5		1p		Fecal	
F	10-18-23	7:40 A	SL	X		6		1p		Fecal	
G	10-18-23	7:45 A	SL	X		7		1p		Fecal	

Comments:

Sampled By: Greg Zupin	Date/Time: 10-18-23 11:30A	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished to Lab By:	Date/Time:	Received at Lab By: Kari B. Cooke	Date/Time: 10-18-23 1130

Report To:	Send Invoice To:
Address:	Address:
Phone/Fax Number:	Phone/Fax Number:

ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

EPA laboratory code: OK00921

Oklahoma DEQ State ID No. 8304

Certificate of Analysis

Client Name: **Sandyland Environmental** Date Received: 01/03/24

Project: **Kaw City** Report Date: 01/24/24

ERT Lab Log #	Sample Identification	Date Sampled	Analysis Date	Time	Analyzed By	Parameter	Results	Units	RL	Method
WW2401047	Lewis #1 - ~~Sludge~~ Soil	12/29/23	01/12/24	13:54	LSB	**Mercury**	**BDL**	mg/kg*	0.0231	EPA 7471B
			01/11/24	16:44	LSB	**Arsenic**	**4.89**	mg/kg*	1.16	EPA 6010D
			01/11/24	16:44	LSB	**Cadmium**	**BDL**	mg/kg*	1.16	EPA 6010D
			01/11/24	16:44	LSB	**Chromium**	**10.3**	mg/kg*	1.16	EPA 6010D
			01/11/24	16:44	LSB	**Copper**	**8.48**	mg/kg*	1.16	EPA 6010D
			01/11/24	16:44	LSB	**Lead**	**11.3**	mg/kg*	1.16	EPA 6010D
			01/11/24	16:44	LSB	**Molybdenum**	**BDL**	mg/kg*	1.16	EPA 6010D
			01/11/24	16:44	LSB	**Nickel**	**10.6**	mg/kg*	1.16	EPA 6010D
			01/11/24	16:44	LSB	**Selenium**	**BDL**	mg/kg*	2.32	EPA 6010D
			01/11/24	16:44	LSB	**Zinc**	**28.7**	mg/kg*	1.16	EPA 6010D
			01/05/24	10:30	JD	**Solids**	**86.9**	%		SM_2540G
			01/11/24	16:44	LSB	**Phosphorus (P)**	**211**	mg/kg*	5.81	EPA 6010D
			01/11/24	16:44	LSB	**Phosphorus (P)**	**0.021**	wt %	---	Derived Value
			01/11/24	16:44	LSB	**Potassium**	**1,310**	mg/kg*	232	EPA 6010D
			01/11/24	16:44	LSB	**Potassium**	**0.131**	wt %	---	Derived Value
			01/23/24	12:30	AT	**Ammonia (N)**	**6.99**	mg/kg*	2.29	EPA 350.1
			01/23/24	12:30	AT	**Ammonia (N)**	**0.001**	wt %	---	Derived Value
			01/05/24	13:20	AJ	**NO3-NO2(N)**	**3.51**	mg/kg*	2.30	EPA 353.2
			01/10/24	16:35	LDH	**TKN**	**2,470**	mg/kg*	124	LACHAT 10-107-06-2-I
			01/10/24	16:35	LDH	**TKN**	**0.247**	wt %	---	Derived Value
			01/05/24	15:45	SN	**pH**	**6.37**	S.U.	0.1	SM 4500-HB

Laboratory Authorized Signature

RL = Reporting Limit

BDL = Analyte Detected Below RL

LSB, LDH = Subcontracted to ODEQ State ID 7211

*mg/kg reported on a dry weight basis

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ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

EPA laboratory code: OK00921

Oklahoma DEQ State ID No. 8304

Certificate of Analysis

Client Name: **Sandyland Environmental** Date Received: 01/03/24

Project: **Kaw City** Report Date: 01/24/24

ERT Lab Log #	Sample Identification	Date Sampled	Analysis Date	Time	Analyzed By	Parameter	Results	Units	RL	Method
WW2401046	**Bahm #1 - ~~Sludge~~ Soil**	**12/29/23**	01/12/24	13:46	LSB	**Mercury**	**0.0271**	mg/kg*	0.0248	EPA 7471B
			01/11/24	16:24	LSB	**Arsenic**	**5.49**	mg/kg*	1.24	EPA 6010D
			01/11/24	16:24	LSB	**Cadmium**	**BDL**	mg/kg*	1.24	EPA 6010D
			01/11/24	16:24	LSB	**Chromium**	**12.0**	mg/kg*	1.24	EPA 6010D
			01/11/24	16:24	LSB	**Copper**	**11.3**	mg/kg*	1.24	EPA 6010D
			01/11/24	16:24	LSB	**Lead**	**17.9**	mg/kg*	1.24	EPA 6010D
			01/11/24	16:24	LSB	**Molybdenum**	**BDL**	mg/kg*	1.24	EPA 6010D
			01/11/24	16:24	LSB	**Nickel**	**12.1**	mg/kg*	1.24	EPA 6010D
			01/11/24	16:24	LSB	**Selenium**	**BDL**	mg/kg*	2.48	EPA 6010D
			01/11/24	16:24	LSB	**Zinc**	**39.9**	mg/kg*	1.24	EPA 6010D
			01/05/24	10:30	JD	**Solids**	**81.8**	%		SM_2540G
			01/11/24	16:24	LSB	**Phosphorus (P)**	**386**	mg/kg*	6.20	EPA 6010D
			01/11/24	16:24	LSB	**Phosphorus (P)**	**0.039**	wt %	---	Derived Value
			01/11/24	16:24	LSB	**Potassium**	**1,310**	mg/kg*	198	EPA 6010D
			01/11/24	16:24	LSB	**Potassium**	**0.131**	wt %	---	Derived Value
			01/23/24	12:30	AT	**Ammonia (N)**	**8.66**	mg/kg*	2.41	EPA 350.1
			01/23/24	12:30	AT	**Ammonia (N)**	**0.001**	wt %	---	Derived Value
			01/05/24	13:20	AJ	**NO3-NO2(N)**	**10.8**	mg/kg*	2.44	EPA 353.2
			01/10/24	16:35	LDH	**TKN**	**2,760**	mg/kg*	501	LACHAT 10-107-06-2-I
			01/10/24	16:35	LDH	**TKN**	**0.276**	wt %	---	Derived Value
			01/05/24	15:42	SN	**pH**	**6.34**	S.U.	0.1	SM 4500-HB

Laboratory Authorized Signature

RL = Reporting Limit

BDL = Analyte Detected Below RL

LSB, LDH = Subcontracted to ODEQ State ID 7211

*mg/kg reported on a dry weight basis

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ENVIRONMENTAL RESOURCE TECHNOLOGIES, LLC

EPA laboratory code: OK00921

Oklahoma DEQ State ID No. 8304

Quality Control Report

Client Name: **Sandyland Environmental** Date Received: 01/03/24

Project: **Kaw City** Report Date: 01/24/24

Date Sampled	Parameter	Method	RL mg/kg (wet)	RPD %	BLANK	Spike % Recovery	Standard % Recovery
12/29/23	% Solids	SM_2540G	-----	1.34	0.00	NA	NA
	Phosphorus (P)	EPA 6010D	5.00	0.002	BDL	77	103
	Potassium	EPA 6010D	200	8.000	BDL	106	99
	Ammonia (N)	EPA 350.1	0.100	1.80	BDL	98.3	100
	NO3-NO2 (N)	EPA 353.2	0.200	0.432	BDL	99.7	99.4
	TKN	LACHAT 10-107-06-2-I	20.0	1	BDL	135*	95
	pH	SM 4500-HB	0.1 SU	0.00	NA	NA	100
	Mercury	EPA 7471B	0.0400	NA	BDL	88	104
	Arsenic	EPA 6010D	1.00	4	BDL	86	97
	Cadmium	EPA 6010D	1.00	4	BDL	87	101
	Chromium	EPA 6010D	1.00	7	BDL	96	103
	Copper	EPA 6010D	1.00	5	BDL	98	106
	Lead	EPA 6010D	1.00	5	BDL	90	101
	Molybdenum	EPA 6010D	1.00	5	BDL	87	105
	Nickel	EPA 6010D	1.00	5	BDL	93	101
	Selenium	EPA 6010D	2.00	4	BDL	74	91
	Zinc	EPA 6010D	1.00	4	BDL	93	99

Laboratory Authorized Signature

RL = Reporting Limit

BDL = Analyte Detected Below RL

* Outside of Control Limits

201 Arlington St. Ada OK 74820
(580) 332-8808 Phone (580) 421-9110 Fax

Environmental Resource Technologies

131 Arlington Ada, Oklahoma 74820
Phone (580) 332-8808 Fax (580) 421-9110

CHAIN OF CUSTODY

CLIENT NAME: Sandylands

PROJECT NAME: Kaw City

Lab Log #	Date Sample Taken	Time Sample Taken	Matrix Water (W) Soil (S) Sludge (Sl) Other	G R A B	C O M P	Client I.D. Sample Location	Temp C, F	No. of Container (p)=plastic (g)=glass	Size of Container 1L, 500mL, 250mL, etc.	Analysis Requested	Sample Presv.
WR240046	12-29-23	1:30	S		X	Buhm #1		g		503 metals	
	12-29-23	1:30	S		X	Buhm #1		g		Nutrients	
	12-29-23	1:30	S		X	Buhm #1		g		% solids, pH	
WR 46047	12-29-23	2:30	S		X	Lewis #1		g		503 metals	
At 1-3-24	12-29-23	2:30	S		X	Lewis #1		g		Nutrients	
	12-29-23	2:30	S		X	Lewis #1		g		% solids, pH	

Comments:

Sampled By: Greg Turpin	Date/Time:	Received By:	Date/Time:
Relinquished By: Greg Turpin	Date/Time: 1:40p 1-3-24	Received By:	Date/Time:
Relinquished to Lab By:	Date/Time:	Received at Lab By:	Date/Time: 1/3/24 13:40

Report To:	Send Invoice To:
Address:	Address:
Phone/Fax Number:	Phone/Fax Number:

PO#_____

Attachment 3

Municipal Sludge Land Application

OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY

Oklahoma Department of Environmental Quality
707 N. Robinson, OKC OK 73102-6010

Application for
Municipal Sludge Land Application Permit

RECEIVED
Mar 27 2024
WATER QUALITY DIVISION

As required by the Oklahoma Environmental Quality Code

This application is to be submitted to obtain a Municipal Sludge Land Application Permit.
Application, plans, and specifications submitted in quadruplicate through the County DEQ personnel.

To the Executive Director of The Department of Environmental Quality
Department of Environmental Quality
Water Quality Division
P.O. Box 1677
Oklahoma City, OK 73101-1677

Date: _____

Application

The applicant, CITY OF KAW CITY (Name of Applicant (Print or Type)), proposes to land apply sludge generated at KAW CITY WASTEWATER Treatment PLANT (Name of Treatment Plant (Print or Type)), facility ID No. S-21201, located at N 680' of TR #5 E BDRY & N 722' W BDRY of TR #6 (Legal Description)

CITY OF KAW CITY (Name of Applicant), hereby makes application for a permit to land apply sludge as required by OAC 252:648 of the Oklahoma Environmental Quality Code, 27A O.S. Supp. 1993, Section 2-1-2-101 et seq., the Solid Waste Management Act, 27A:2-10-101 et siq., Article VI of the Code [Water Quality], 27A:2-6-101 et siq., the Oklahoma Pollutant Discharge Elimination System Act, 27A:2-6-201 et sig. And any rules and regulations pursuant thereto.

Applicant Signature

Note: Application must be signed by the authorized chief elective or executive officer of the applicant. Information must be legible.

Jerry Brown (Signature)	CITY OF KAW CITY (Name of Organization (Print or Type))
JERRY BROWN (Name of Authorized Signature (Print or Type))	900 MORGAN SQUARE EAST (Street Address (Print or Type))
MAYOR (Title)	KAW CITY OK 74641 (City/State/Zip Code)

COUNTY DEQ PERSONNEL ONLY

I have had the opportunity to review this application and comment on it.

Signature: _____
Title: _____
County: _____
Date: _____

DO NOT USE THIS SPACE - ODEQ ONLY

SITE NAME/ DESIGNATION	STREET NAME (if applicable)	LEGAL DESCRIPTION (including county)	LONGITUDE LATITUDE

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
APPLICATION FOR AUTHORIZATION TO BE COVERED UNDER GENERAL PERMIT GP NO ____
FOR LAND APPLICATION OF SEWAGE SLUDGE

FORM_____

RECEIVED
Mar 27 2024
WATER QUALITY DIVISION

FOR DEQ USE ONLY	**Application/Permit Number GP** _____
	Date Received _____
	One Time Land Application _____, **Minor Facility** _____
	DEQ Biosolids Coordinator _____

SECTION I

1. **Legal name of applicant:**
   CITY OF KAW CITY
2. **Mailing address of applicant:**
   Street address or PO Box 900 Morgan Square EAST
   City KAW CITY County KAY State OKLAHOMA Zip 74641
   Telephone (580) 269-2525
3. **Name and address of facility:**
   Facility Name KAW CITY WASTEWATER TREATMENT PLANT
   City KAW CITY County KAY State OKLAHOMA Zip 74641
4. **Location of land application site:**
   Legal Description: ___¼, ___¼, ___¼, Sec ____, T ____, R ____. ( ) IM ( ) CM.
   Entry Point: Longitude _____, Latitude _____.
5. **Type Ownership** Public ( ) Private ( ) Federal ( ) State ( )
6. **Contact Person:**
   Name & Title _____
   Street address or PO Box _____
   City _____ County _____ State _____ Zip _____
   Telephone (____) _____
7. **Type of Treatment:**
   Minor Facility: Design Capacity 50,000 gpd Estimated Sludge Production _____ Dry Tons/Year
   Lagoon: Estimated sludge quantity _____ Dry Tons
   Other sludge storage facility: Estimated sludge quantity _____ (Dry Tons)
8. **Does Facility Receive Industrial Wastes?** Yes ( ) No (X)
   If "yes", What is the average daily industrial waste flow _____ GPD
   If the facility receives wastewater from a categorical industry, you must submit Section II of this form (attached) for each categorical industrial facility discharging to the sewer system.
9. **Are industrial discharge(s) to the system controlled by ordinance?** Yes ( ) No ( )

10. Sludge generated by the facility:

A. When was the last time sludge was removed from the facility (date) _____

B. Was removal authorized by DEQ? Yes ( ) No ( )

C. How was it disposed of (describe the disposal method) _____

_____

_____

D. Location(s) of the disposal site(s) (legal description to the nearest 10 acres) _____

_____

E. Sludge Management Plan, if any:
Sludge Plan ID Number _____ approved by the Department of Environmental Quality

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I also certify that I will provide for the operation of this facility in accordance with the Oklahoma Discharge Permits and Pollution Control Regulations and will provide certified operators as required by the Oklahoma Water and Wastewater Operations Certification Act. I further certify that I shall acquire or possess a right to the use of the property or properties on which the land application activities are located as well as the access route thereto. I understand I shall maintain such right of use and access for the duration of the permit term. I am aware that there are significant penalties for submitting false information, including revocation of the permit and the possibility of fine and imprisonment.

Note: Application must be signed by the authorized chief elective or executive officer of the applicant, or by the applicant, if an individual.

Name (print) JERRY BROWN

Title MAYOR

Date JAN 5th 2024

Signature Jerry Brown

Subscribed and sworn to before me this 5 *day of* Jan., 2024.

Tammy Wingo *My commission expires* 1-23-2024

This application shall be filed in duplicate with the original and one copy to be submitted to the DEQ, and one copy to be submitted to the local DEQ office.

NOTARY PUBLIC SEAL
TAMMY WINGO
Notary Public in and for the
State of Oklahoma
Commission #12000724
My Commission expires 1/23/2024

Please return completed form with attachments to:

Water Quality Division
Department of Environmental Quality
707 N. Robinson, P>O. Box 1677
Oklahoma City, Oklahoma 73102-1677

SECTION II

INDUSTRIAL WASTE CONTRIBUTION TO MUNICIPAL SYSTEM

Submit a description of each industrial facility discharging to the municipal system, using a separate Section II for each. Indicate the 4 digit Standard Industrial Classification (SIC) code for the industry, the major product or raw material, the flow (in gallons per day), and the characteristics of the wastewater discharged from the industrial facility into the municipal system.

1. **Major contributing facility:**

   Name _____

   City _____ County _____ State _____ Zip _____

2. **Primary standard industrial classification Code _____**

3. **Principal product or Raw Material**

   Product or raw material

   _____

   Product or raw material

   _____

   Product or raw material

   _____

4. **Flow: Indicate the volume of water discharged into the municipal system in gallons per day and whether this discharge is intermittent or continuous.** _____ GPD

   Intermittent ( ) Continuous ( )

5. **Pretreatment Provided: Indicate if pretreatment is provided prior to entering the municipal system.**

   Yes ( ) No ( )

6. **Characteristics of Wastewater**
